Amendments to the Specification:

At page 1, please replace the paragraph at lines 7-8 with:

This application is a continuation in part of U.S. Ser. No. 08/881,189, filed June 24, 1997, now U.S. Patent No. 6,310,195, the entire contents of which are hereby incorporated by reference.

At page 7, please replace the paragraph at lines 7-11 with:

In various embodiments of the sixth aspect of the invention, the cells of the isolated population are hemangioblasts, ~~messenchymal~~ mesenchymal stem cells, bone progenitor cells, hepatic progenitor cells, endothelial progenitor cells, hematopoietic progenitor cells, embryonal stem cells, brain progenitor cells, or dendritic progenitor cells. Preferably, the cells of the isolated population are hematopoietic progenitor cells.

At page 9, please replace the paragraph at lines 25-29 and continuing onto page 10, lines 1-7 with:

According to the invention, compositions of a FRIL family member may be used as therapeutic agents to preserve progenitor cells in patients, such as cancer patients receiving chemotherapy, who ~~have~~ suffer from a condition that diminishes their progenitor cells. For example, compositions of a FRIL family member may be administered with a pharmaceutically-acceptable carrier (*e.g.*, physiological sterile saline solution) via any route of administration to a cancer patient receiving chemotherapy in an attempt to reduce the progenitor cell-depleting effects of the chemotherapeutic so that the patient can receive a higher dose of the chemotherapeutic and, preferably, recover from cancer. Pharmaceutically-acceptable carriers and their formulations are well-known and generally described in, for example, Remington's Pharmaceutical Sciences (18th Edition, ed. A. Gennaro, Mack Publishing Co., Easton, PA, 1990).

At page 12, please replace the paragraph at lines 24-29 and continuing on page 13 at lines 1-5 with:

Figure 16 is a schematic diagram showing the serial replating of progenitor cells cultured in Dl-FRIL, a representative, non-limiting FRIL family member of the invention, or Dl-FRIL+recFL (*i.e.*, recombinant FLT3-Ligand). The human cord mononuclear cells were first cultured in ~~supensiion~~ suspension in 40 ng/mL Dl-FRIL of 40 ng/mL Dl-FRIL + 40 ng/mL recFL (solid black box). The cells were then harvested and assessed for progenitor activity by being replated into methylcellulose colony assay medium for 6 weeks (middle striped box). Then the cells were harvested from the colony assay and again replated into methylcellulose colony assay medium for an additional 4 weeks (far right striped box). Progenitor frequencies were determined for cells after 3 weeks of suspension culture in Dl-FRIL or Dl-FRIL+recFL, and after an additional 6 weeks of methylcellulose culture (absent Dl-FRIL and/or recFL).

At page 25, please replace the paragraph at lines 22-29 and continuing on page 26, lines 1-13 with:

In accordance with the first aspect of the invention, by "essentially pure" means a molecule, such as a nucleic acid or protein (*e.g.*, a FRIL family member molecule), or composition of a molecule that is more free from other organic molecules (*e.g.*, carbohydrates, nucleic acids, proteins, and lipids) that naturally occur with an impure molecule, and is substantially free as well of materials used during the purification process. For example, a protein or nucleic acid molecule is considered to be essentially pure if it is at least approximately 60%, preferably at least approximately 75%, more preferably approximately at least 85%, most preferably approximately at least 90%, and optimally approximately at least 95% pure, *i.e.*, free from other organic molecules with which it naturally occurs and free from materials used during the purification process. Methods for purifying proteins are known in the art and include, without limitation, HPLC, SDS-PAGE, immunoprecipitation, recombinant protein production, affinity chromatography using specific antibodies, ion-exchange, size-exclusion, and hydrophobic interaction chromatography, or a combination of any of these methods. These and other suitable methods are described, *e.g.*, in Marston, "The purification of eukaryotic proteins

expressed in *E. coli*," in *DNA Cloning*, Glover D.M., ed., Volume III, IRL Press Ltd., Oxford, 1987; Marston and Hartley, "Solubilization of protein aggregates," pp. 266-267 in *Guide to Protein Purification*, Deutscher MP, ed., Academic Press, San Diego, 1990; Laemmli, U.K., *Nature* 227:680-685, 1970. A FRIL family member can also be purified by binding to a mannose, which may be coupled on a ~~sold~~ solid support (*e.g.*, a sepharose bead).

At page 29, please replace the paragraph at lines 25-29 and continuing on page 30, lines 1-8 with:

In certain embodiments of the first aspect of the invention, the FRIL family member molecule is a fusion protein comprising a first portion and a second portion, wherein the first portion is derived from a second member of the FRIL family. By "fusion protein" is meant a molecule comprising at least two proteins or polypeptide fragments thereof joined together, wherein the proteins or polypeptide fragments thereof are not joined together in the naturally-occurring organism from which the proteins or polypeptide fragments thereof were derived. The two proteins or polypeptide fragments thereof of a fusion protein may be joined by any means, including, without limitation, a chemical linker, a peptide bond, or a non-covalent bond, such as an ionic bond. By "protein" or "polypeptide" is meant a chain of two or more amino acid residues joined with a peptide bond regardless of length or post-translational modification such as acetylation, glycosylation, lipidation, ~~acetylation,~~ or phosphorylation.

At page 31, please replace the paragraph at lines 18-21 with:

In accordance with the second aspect of the invention, a "member of the FRIL family of progenitor cell preservation factors" is ~~a~~ as described above in the first aspect of the invention. "Essentially pure" is used as described for the first aspect of the invention.

At page 41, please replace the paragraph at lines 3-12 with:

In a fourth aspect, the invention provides a method ~~for a method~~ for alleviating and/or reducing the hematopoietic progenitor cell-depleting activity of a therapeutic treatment in a

patient, comprising administering to the animal a therapeutically effective amount of a composition of a FRIL family member prior to administration of the therapeutic treatment to the patient. "Hematopoietic progenitor cell-depleting activity" is as described for the third aspect of the invention. Routes of administration of a composition of a FRIL family member of this aspect of the invention are as described for the administration of the pharmaceutical formulation of the third aspect of the invention. "Therapeutically effective amount" is as described for the third aspect of the invention.

At page 44, please replace the paragraph at lines 15-23 with:

In certain embodiments of the fifth aspect of the invention, the population of cells is a sorted population of cells, wherein a cell of the sorted population does not express CD11b, CD11c, or CD38. Because more primitive progenitor ~~cell stypically expresses~~ cells typically express few cell surface molecules, prior to isolating a population of progenitor cells that binds to a FRIL family member, the population of cells is preferably sorted to first remove cells that express one or more of the following cell surface molecules: CD11b, CD11c, and CD38. Following this negative sort (*i.e.*, a sort, wherein the cells retained do not express CD11b, CD11c, and/or CD38), the sorted population is positively sorted for an ability to bind a FRIL family member.

At page 45, please replace the paragraph at lines 26-29 and continuing onto page 46, lines 1-6 with:

In various embodiments of the sixth aspect of the invention, the cells of the isolated population are hemangioblasts, ~~messenchymal~~ mesenchymal stem cells, bone progenitor cells, hepatic progenitor cells, endothelial progenitor cells, hematopoietic progenitor cells, embryonal stem cells, brain progenitor cells, or dendritic progenitor cells. By "hemangioblast" is meant a cell that is a progenitor cell for both hemaopoietic and endothelial lineages. Preferably, the cells of the isolated population are hematopoietic progenitor cells. By a "~~messenchymal~~ mesenchymal stem cells" is meant the population of cells that is the progenitor for bone marrow stromal cells, including, without limitation, adipose tissue cells, cartilage-producing cells, muscle

cells, and bone cells. Such cells of this aspect of the invention can be used, for example, for tissue repair.

At page 52, please replace the paragraph at lines 11-17 with:

Seeds from the hyacinth beans (*Dolichos lab lab*) were purchased from Stokes Seeds (Buffalo, NY) and grown in a greenhouse. Dry seeds were ground in a coffee mill and the ~~power~~ powder was extracted in 5 volumes of 50 mM Tris/HCl containing 1 nM each of $MgCl_2$ and $CaCl_2$ for 4 hours at 4°C. Bean solids were pelleted by centrifugation at 10,000 x g for 20 min. The pH of the supernatant was acidified to pH 4.0 with acetic acid, followed by a second centrifugation to clarify the supernatant, and finally the pH was readjusted to 8.0 with sodium hydroxide. This crude extract was stored at -20°C.

At page 57, please replace the paragraph at lines 14-18 with:

The derived Dl-FRIL amino acid sequence, however, comprises an additional ~~of seven~~ eight amino acid residues (aa27-34) that does not occur in the amino acid sequence described Gowda et al., *supra*. Several other differences between the amino acid sequences of Dl-FRIL and the amino acid sequence described by Gowda et al., *supra*, are also readily discernible from Fig. 2.

At page 68, please replace the paragraph at lines 1-10 with:

To do this, umbilical cord blood from healthy donors was collected in 100 units/ml of heparin. Cord blood mononuclear cells (CB mnc) were isolated within 4 hours of collection by separation using the density separation medium sold under the trademark of FICOLL-PAQUE® (Pharmacia Biotech, Piscataway, NJ) following manufacturer's instruction and washed in X-VIVO 10 medium (BioWhittaker, Walkersville, MD). CB mnc were then cultured in six well tissue culture plates (Corning Inc., Corning, NY) at a concentration of 200,000 cells/mL in a volume of 4 mL of X-VIVO 10 (*i.e.*, 800,000 cells total per well). Dl-FRIL and/or recombinant *E. coli* Flt3-L (recFL; BioSource International, Camarillo, CA) were added at a concentration of

40 ng/ml at the outset (with no addition as a control). Cultures were incubated in humidified chambers without medium changes for up to 29 days.

At page 72, please replace the paragraph at lines 20-29 continuing on page 73, lines 1-5 with:

Various sources of conditioned medium were screened for the presence of Flt3 3T3 stimulatory activity. The most potent source was conditioned medium harvested from human peripheral blood cells activated to secrete high levels and a broad range of cytokines by the mitogenic legume lectin, phytohemagglutinin (PHA), which is derived from impure red kidney bean extracts. This source, commonly called PHA leukocyte-conditioned medium (PHA-LCM), has been used as a standard positive control in hematopoietic colony assays for over two decades (Sharon and Lis, *Science* 246: 227, 1989). To make PHA-LCM, leukopherized blood from normal volunteers was purchased from North American Biologicals Inc., Miami, FL. Mononuclear cells were isolated by separation using the density separation medium sold under the trademark of FICOLL-PAQUE®, washed in AIMV, and cultured at a concentration of 2 x 10^6 cells/ml in AIMV containing a 1% volume of crude red kidney bean extract containing PHA from Life Technologies (catalog number 10576-015) in either T150 flasks (Becton Dickinson Labware, Lincoln Park, NJ) or roller bottles (Becton Dickinson Labware) for one week. Cells and debris were removed by centrifugation and conditioned medium was stored at -20^{O}C.

At page 73, please replace the paragraph at lines 28-29 and continuing on page 74, lines 1-6 with:

After validation that a fraction had ~~Flt3 T3~~ Flt3 3T3 activity, a phenyl-sepharose HP (Pharmacia Biotech) column (1.6 cm x 10 cm) was equilibrated with 20 mM phosphate, pH 7, 1.5 M NH4SO4. The pooled sample from Q-sepharose was adjusted to 1.5 M NH4SO4 and applied to the phenyl-sepharose column. The column was washed with equilibration buffer and eluted at 1 ml/min with a gradient of 1.5-0.1 M NH4SO4 in 20 mM phosphate, pH 7. Fractions (1 ml) were collected and tested for Flt3 3T3 activity. Fractions with Flt3 3T3 activity were

pooled and dialyzed against 50 mM Tris-HCl, pH 7.2, 100 mM NaCl and concentrated by vacuum centrifugation.

At page 120, please replace the paragraph at lines 3-6 with:

Dry seeds of Yam bean (*Sphenostylis stenocarpa*) were ground in a coffee mill and the powder was extracted with 5 volumes of 10 mM Na Acetate buffer, pH 5.2, containing 1 mM $CaCl_2$ for 1 hour at 4°C. After centrifugation, the clear supernatant was ~~neutalized~~ neutralized with Tris-HCl pH 8.0.